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**REMARKS/ARGUMENTS**

This application has been reconsidered carefully in light of the Office Action dated as mailed on 19 April 2006. A careful reconsideration of the application by the Examiner in light of the foregoing amendments and the following remarks is respectfully requested.

This response is timely filed as it is filed within the three (3) month shortened statutory period for response to the outstanding Office Action.

No additional claim fee is believed due as a result of this Amendment because neither the total number of pending claims nor the number of pending independent claims is believed to exceed the total number and the number of independent claims, respectively, for which fees have previously been paid. If, however, it is determined that such a fee is properly due as a result of this communication, the Commissioner is hereby authorized to charge payment of such fees or credit any overpayment, associated with this communication, to Deposit Account 19-3550.

**Amendment to the Claims**

By the above,

1. independent claims 1 and 18 have each been rewritten to specifically require that the claimed ignition composition comprise a **metal** fuel,

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2. claims 2-8 (dependent on claim 1) and claims 19-22 (dependent on claim 18) have been correspondingly rewritten,

3. claim 13 has been amended to recite that the blowing agent has a decomposition temperature of between about 130°C and about 170°C, and

5 4. claim 27 has been rewritten and claim 20 has been further amended to correct respective typographical errors that became evident on further review of the application.

The presently claimed ignition compositions comprising a metal fuel finds support throughout the originally filed application such as at page 11, 10 lines 12-19, as well as in original claims 2-4 and 19-21, for example. Amended claim 13 also finds support throughout the originally filed application such as at page 13, line 20 to page 15, line 10 and page 16, lines 3-12, for example.

Claims 1-29 remain in the application, with the Action having identified claims 5-8, 16, 17, 22 and 25 as having been withdrawn from further consideration.

#### 15 Election/Restrictions

The Action identifies claims 5-8 and 22 as included with the claims withdrawn from consideration. By the above, each of claims 5-8 and 22 have been rewritten to be directed to ignition compositions that in addition to the previously elected materials include additional, specified materials. In view thereof, 20 reconsideration of the stated withdrawal of these claims is respectfully requested.

**Claim Rejections - 35 U.S.C. § 112**

**1. Claim 13 was rejected under 35 U.S.C. §112, first paragraph.**

The Action states that “the specification while being enabling for the use of aminoguanidine bicarbonate as a thickening agent that would decompose at between 130 and 170 degrees C, does not reasonably provide enablement for all combinations of fuel, oxidizer, polymeric binder and blowing agent.” The Action then alleges that the specification does not enable any person skilled the art to which it pertains or with which it is most nearly connected, to make the invention commensurate in scope with this claim.

By the above, claim 13 has been rewritten, consistent with the statements in the Action, to recite that the blowing agent has a decomposition temperature of between about 130°C and about 170°C. [See page 16, lines 9-12, for example.]

In view thereof, claim 13 is believed to be fully and properly enabled by the specification and notification to that effect is solicited.

Additionally, as a point of record, it is noted that the application describes that aminoguanidine bicarbonate is included in ignition compositions in accordance with certain embodiments as a blowing agent not as a thickening agent, as stated in the Action.

**Claim Rejections - 35 U.S.C. § 103**

2. **Claims 1, 11-15, 18, 23 and 26-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,883,330 to Yoshida (hereinafter “Yoshida”).**

5                   By the above, independent claims 1 and 18 (with claims 11-15 dependent on claim 1 and claims 23 and 26-29 dependent on claim 18) have been rewritten to be directed to ignition compositions which are effective to form an igniter substance having a surface area and which ignition compositions include **a metal fuel**. More specifically, the claimed ignition compositions comprise: a metal fuel; an  
10 oxidizer; a polymeric binder; and a blowing agent effective, upon decomposition, to increase the surface area of the igniter substance. The ignition composition, upon being heated to a predetermined temperature, forms an igniter substance which is porous and capable of adhering to an associated inflator apparatus surface.

                  It is respectfully submitted that ignition compositions, as claimed and  
15 such as include a metal fuel, are not shown nor suggested by Yoshida.

                  Moreover, it is noted that Yoshida is directed to **gas generating compositions** essentially containing a nitrogen-containing organic compound and an oxygen-containing inorganic oxidizing agent. (See Yoshida, Title, column 1, lines 5-11 and column 3, lines 16-21, for example.) In sharp contrast thereto, the

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subject invention development is directed to ignition compositions and, in particular, to ignition compositions which upon being heated to a predetermined temperature, form an igniter substance which is porous and capable of adhering to an associated inflator apparatus surface.

5                   Those skilled in the art will readily appreciate that compositions for gas generation and compositions for ignition are distinct materials, each having their own particular performance and operational characteristics and/or parameters. In particular, gas generating compositions are designed to rapidly produce a large quantity of inflation gas desirably at as low a temperature as possible. In contrast, 10 ignition compositions are designed to provide a high temperature output in the form of heated gases and particles such as to rapidly ignite an associated gas generating material. Thus, as such compositional inclusion of metal fuels are known in the art to result in the production or formation relatively large amounts of heat, such heat production is neither sought nor desired in gas generant compositions for inflation gas 15 applications.

                  In view of the above, reconsideration and withdrawal of the subject rejections are requested.

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It is additionally noted that at least certain of the dependent claims include additional limitations which are believed to render such claims further patentable over the prior art of record. For example, claim 27 requires the ignition composition further comprise a desensitizing agent. Claim 28 further requires the  
5 ignition composition comprise the desensitizing agent in an amount of up to about 10 composition weight percent. Claims 29 further requires that the desensitizing agent is bentonite clay.

It is respectfully submitted that there has been no prior art showing or suggestion of ignition compositions comprising such desensitizing agents or in such  
10 amounts. In view thereof, these claims are believed to be further patentable over the prior art of record.

Moreover, claim 15 requires “the ignition composition, upon being heated to a predetermined temperature, forms a porous igniter coating that adheres to at least a portion of the surface of the gas generant material.” While the Action  
15 alleges that “Yoshida’s composition of either RDX or HMX and aminoguanidine bicarbonate [is] capable of being made porous and adhering: see col. 4 lines 30-31”, Yoshida at column 4, lines 30-31 says nothing about porosity or adherability.

In view thereof, claim 15 is believed to be further patentable over the prior art of record and notification to that effect is solicited.

3. **Claims 2-4 and 19-21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Yoshida in view of U.S. Patent 6,224,099 to Nielson et al. (hereinafter “Nielson”).**

In so rejecting these claims, the Action acknowledges that Yoshida does not disclose “the fuel being a powdered metal of aluminum and magnesium alloy.” The Action, however, cites Nielson as disclosing “a [sic] igniter composition with powdered aluminum and magnesium alloy as a fuel.” The Action alleges that:

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the composition of Yoshida by adding a fuel of a powdered metal of aluminum and magnesium alloy as disclosed by Nielson et al so as to ensure effective gas generation.

As noted above, Yoshida is directed to gas generating compositions essentially containing a nitrogen-containing organic compound and an oxygen-containing inorganic oxidizing agent. In contrast, Nielson is directed extrudable igniter compositions and the reference therein to a powdered aluminum and magnesium alloy, cited in the Action, specifically refers to the igniter composition described therein. [See Nielson, column 3, lines 50-56.]

Those skilled in the art will appreciate that gas generating compositions desirably incorporate fuel materials that burn rapidly to produce large quantities of gas. For safety reasons, such gas generating compositions are generally designed to produce relatively low temperature or relatively “cool” inflation gases such as to

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avoid or prevent unintended harm to the vehicle occupant upon the occurrence of an  
airbag deployment event. In contrast, as described in the application at page 2, third  
paragraph, ignition materials desirably burn relatively rapidly, with a large caloric  
output such as to rapidly and effectively ignite a supply of gas generant material  
5 which in turn reacts to produce or form inflation gas to inflate an associated airbag  
cushion.

As gas generating compositions and ignition compositions have their  
own particular performance and operational characteristics and/or parameters, it is  
respectfully submitted that the Action has failed to establish a proper basis for  
10 picking, choosing and then combining materials or components from the gas generant  
materials of Yoshida with the ignition compositions of Nielson.

In this regard it is specifically noted that Nielson also identifies and  
describes various gas generant compositions and gas generant composition  
ingredients, such as fuels and oxidizers, suitable for use in conjunction with the  
15 igniter compositions thereof. Nowhere does Nielson show or disclose the  
incorporation and use of powdered aluminum and magnesium alloy or the like in the  
gas generant compositions thereof let alone that the inclusion of the ignition material  
fuel of powdered aluminum and magnesium alloy or the like in gas generant  
compositions “ensure effective gas generation.”



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As Nielson was clearly aware of powdered aluminum and magnesium alloys and chose not to include such alloys in the gas generating materials thereof, the Office Action-proposed modification to include such alloys in the gas generating materials of Yoshida is clearly contrary to the express teachings of the applied references.

Moreover, the MPEP specifically and expressly provides that a proposed modification of the prior art cannot render the prior art unsatisfactory for its intended purpose. See MPEP 2143.01 V which states:

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

While the Action states that the blowing agent (aminoguanidine bicarbonate) of Yoshida is effective upon decomposition to increase the resulting surface area (see the rejections of claims 1, 11-15, 18, 23 and 26-29 discussed in the last paragraph on page 3 of the Action), the Action has failed to acknowledge or appreciate that such decomposition would render the composition disclosed by Yoshida unsatisfactory for its intended purpose - the generation of gas to inflate an airbag for automotive use. (See Yoshida, column 1, lines 5-8, for example.). Heating of the composition of Yoshida to a temperature sufficient to decompose the blowing

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agent would result in decomposition of nitrogen-containing organic compounds the Action has identified as suitable fuel materials. Consequently, as a result of such decomposition, the composition would no longer as effectively operate as a generant material such as desired for the inflation of an automotive airbag. Thus, one skilled in the art would not be motivated to heat the composition of the Yoshida such as to effect decomposition of the blowing agent.

As noted above, those skilled in the art will readily appreciate that gas generating compositions and igniter substances are not one in the same and, further, that each has its own particular performance and operational characteristics and parameters. In particular, gas generating compositions incorporate fuel materials that burn rapidly to produce large quantities of gas. For safety reasons, such gas generating compositions are generally designed to produce relatively low temperature or relatively "cool" inflation gases such as to avoid or prevent unintended harm to the vehicle occupant upon the occurrence of an airbag deployment event. Thus, those skilled in the art would not be motivated to modify the gas generating composition disclosed by Yoshida to include a metal fuel. Accordingly, Yoshida does not provide or suggest Applicants' claimed invention which recites an ignition composition including a metal fuel.

In view of the above, reconsideration and withdrawal of the subject rejections are requested.

4. **Claims 9, 10 and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida in view of U.S. Patent 5,007,973 to Trapp et al. (hereinafter "Trapp").**

5 The Action again cites Yoshida as disclosing an ignition composition containing a fuel, an oxidizer, a polymeric binder and a blowing agent effective, upon decomposition, to form a porous igniter substance. The Action acknowledges that Yoshida does not disclose the polymeric binder being hydroxypropyl cellulose. The Action cites Trapp as disclosing a composition with hydroxypropyl cellulose. The Action alleges that it would have been obvious to one of ordinary skill in the art at the  
10 time of the invention to further modify the composition of Yoshida by using hydroxypropyl cellulose as the binder so as to have a thickener and a binder.

Claims 9 and 10 are dependent on claim 1 and claim 24 is dependent upon claim 18.

15 As the proposed combination of Trapp with Yoshida does not overcome the shortcomings of rejections based on Yoshida relative to claims 1 and 18, these claims which are dependent thereon are also believed to be patentable over the prior art of record and notification to that effect is solicited.

20 Moreover, the Action has failed to identify a proper basis for the proposed modification of the composition of Yoshida by the proposed inclusion of the hydroxypropyl cellulose thickening agent of Trapp. Trapp is specifically directed to

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multicomponent explosive compositions such as for use as a blasting agent in ditching operations and the like. The explosive of Trapp “comprises a fuel component and an oxidizer component, both of which are retained in the liquid state over wide temperature ranges and are stable over long storage intervals. (See abstract.) Trapp discloses the important inclusion of a **thickening agent** in the explosive composition preparation thereof. (See Trapp, column 14, lines 37-68.) In contrast, Yoshida discloses that the gas generant composition thereof “may further contain a binder for improving the molding strength of the composition”. (See Yoshida, column 5, lines 41-43.) While the inclusion of a thickening agent may be desirable in a liquid explosive composition such as provided by Trapp (see Trapp claim 1, for example), it is respectfully submitted that the Action has failed to identify or provide a proper basis for the proposed modification of the gas generant composition of Yoshida by the proposed inclusion of the hydroxypropyl cellulose thickening agent of Trapp.

In view of the above, these claims are believed to be patentable over the prior art of record and notification to that effect is solicited.

#### **Withdrawn Claims**

As identified above, the Action identifies claims 5-8, 16, 17, 22 and 25 as having been withdrawn from further consideration.

